

AMENDMENTS TO THE CLAIMS

1 to 21. (Canceled)

22. (Currently Amended) A multi-beam scanning optical system

comprising:

incidence optical means for guiding a plurality of beams emitted from light source means having a plurality of light-emitting regions spaced apart from each other in a main scanning direction, to deflecting means;

scanning optical means for focusing the plurality of beams deflected by the deflecting means, on a surface to be scanned; and

synchronism-detecting optical means for converging part of the plurality of beams deflected by the deflecting means, on a slit surface ~~by a lens section~~, thereafter guiding the beams to a synchronism detector, and controlling timing of a scan start position on the surface to be scanned by use of a signal from the synchronism detector,

wherein, where $\delta M1$ is a defocus amount in a main scanning section of the beams guided to the synchronism detector and in a view from the slit surface and δX is a defocus amount at each image height on the surface to be scanned, the following condition is satisfied:

$$|\delta X - \delta M1| \leq \delta Y_{\max} / \theta_{\max}$$

[[()]]where

δY_{\max} : permissible dot shift amount per scan line, which is not

more than half of resolution in a sub-scanning direction;

θ_{max} : maximum angle difference between angles of incidence to the slit surface of the beams used for detection of synchronism[[]].

23. (Canceled)

24. (Original) The multi-beam scanning optical system according to Claim 22, comprising correction means for relatively shifting a focus position in the main scanning section of the beams guided to said synchronism detector in a direction of the optical axis of said synchronism-detecting optical means from said slit surface.

25. (Original) The multi-beam scanning optical system according to Claim 22, comprising correction means for moving the position of said slit surface or a unit including the slit surface in a direction of the optical axis of said synchronism-detecting optical means.

26. (Original) The multi-beam scanning optical system according to Claim 22, wherein said lens section is disposed in an optical path between said deflecting means and said slit surface, said optical system comprising correction means for moving said lens section in a direction of the optical axis of said synchronism-detecting optical means.

27. (Currently Amended) A multi-beam scanning optical system comprising:

incidence optical means for guiding a plurality of beams emitted from light source means having a plurality of light-emitting regions spaced apart from each other in a main scanning direction, to deflecting means;

scanning optical means for focusing the plurality of beams deflected by the deflecting means, on a surface to be scanned, to form a plurality of scan lines; and

synchronism-detecting optical means for converging part of the plurality of beams deflected by the deflecting means, on a slit surface ~~by a lens section~~, thereafter guiding the beams to a synchronism detector, and controlling timing of a scan start position on the surface to be scanned for ~~each of~~ the plurality of beams by use of a signal from the synchronism detector[[:]],

where $\delta M1$ is a defocus amount in a main scanning section of the beams guided to the synchronism detector and in a view from the slit surface and δX is a defocus amount at each image height on the surface to be scanned, said multi-beam scanning optical system comprising correction means for correcting a dot shift per scan line on the surface to be scanned, which occurs because of a difference between the two defocus amounts $\delta M1$, δX .

28. (Original) The multi-beam scanning optical system according to Claim 27, wherein said dot shift is not more than half of resolution in a sub-scanning direction.

29. (Original) The multi-beam scanning optical system according to Claim 27, wherein said plurality of light-emitting regions are spaced apart from each other in the main scanning direction and in the sub-scanning direction.

30. (Original) The multi-beam scanning optical system according to Claim 29, wherein a slit in said slit surface is inclined in the sub-scanning direction according to the dot shift per scan line on said surface to be scanned.

31. (Original) The multi-beam scanning optical system according to Claim 29, comprising rotating means for rotating said slit surface or a unit including the slit surface about the optical axis of the synchronism-detecting optical means according to the dot shift per scan line on said surface to be scanned.

32 to 36. (Canceled)

37. (Currently Amended) An image forming apparatus comprising:
the multi-beam scanning optical system as set forth in ~~either~~ any one of
Claims ~~1 to 36~~ 22 and 24 to 31;

a photosensitive member placed on said surface to be scanned;

a developing unit for developing an electrostatic latent image formed on
said photosensitive member with scanning light by said multi-beam scanning optical
system, into a toner image;

a transfer unit for transferring said developed toner image onto a transfer
medium; and

a fixing unit for fixing the transferred toner image on the transfer medium.

38. (Currently Amended) An image forming apparatus comprising:
the multi-beam scanning optical system as set forth in ~~either~~ any one of
Claims ~~1 to 37~~ 22 and 24 to 31; and
a printer controller for converting code data supplied from an external
device, into an image signal and entering the image signal into said multi-beam scanning
optical system.

39 to 42. (Canceled)